FIG. 1

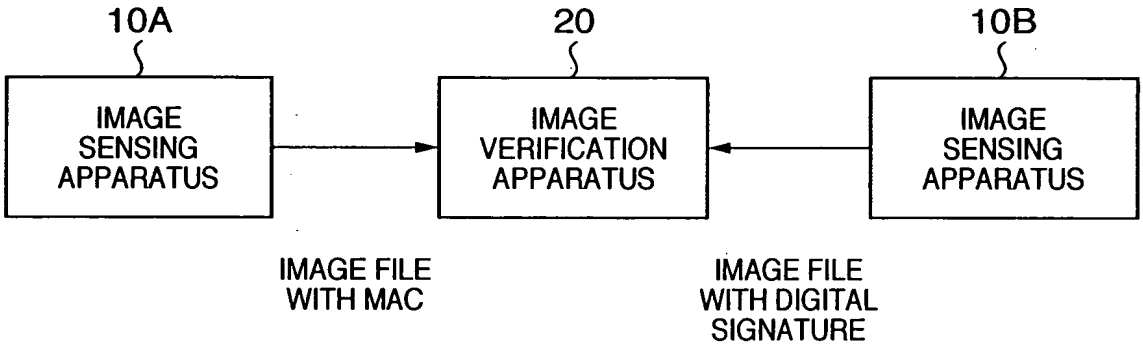

10A
20
10B
IMAGE SENSING APPARATUS
IMAGE VERIFICATION APPARATUS
IMAGE SENSING APPARATUS
IMAGE FILE WITH MAC
IMAGE FILE WITH DIGITAL SIGNATURE

FIG. 2

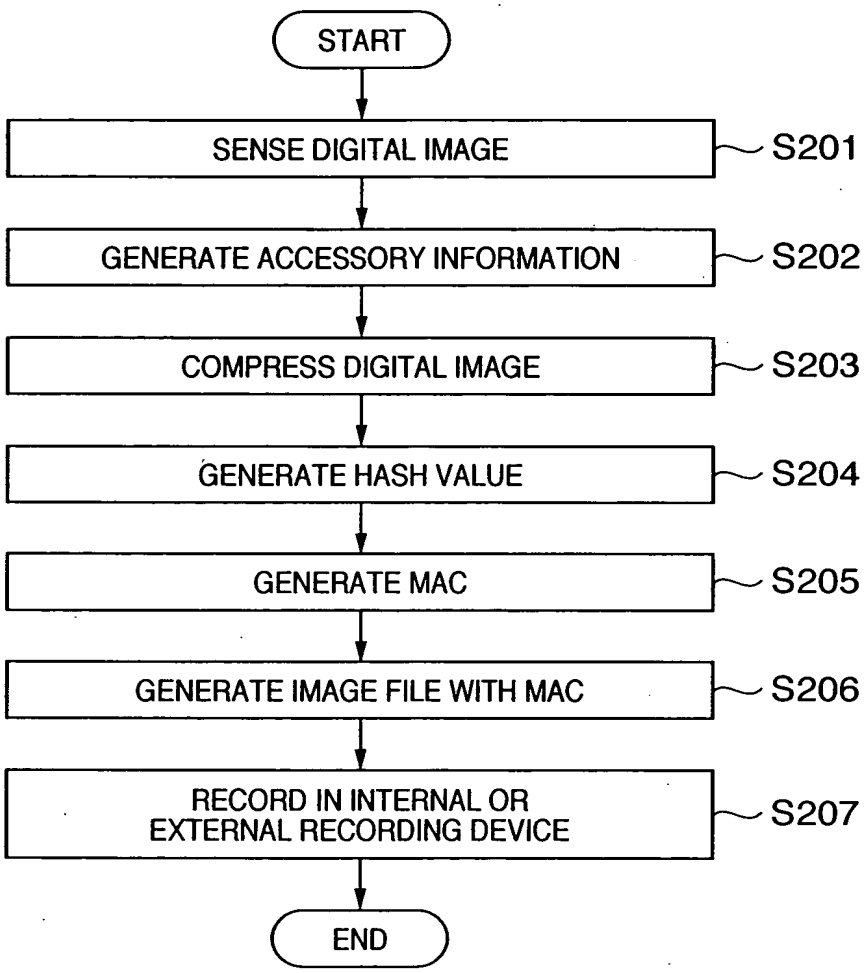

START
SENSE DIGITAL IMAGE
S201
GENERATE ACCESSORY INFORMATION
S202
COMPRESS DIGITAL IMAGE
S203
GENERATE HASH VALUE
S204
GENERATE MAC
S205
GENERATE IMAGE FILE WITH MAC
S206
RECORD IN INTERNAL OR EXTERNAL RECORDING DEVICE
S207
END

FIG. 3

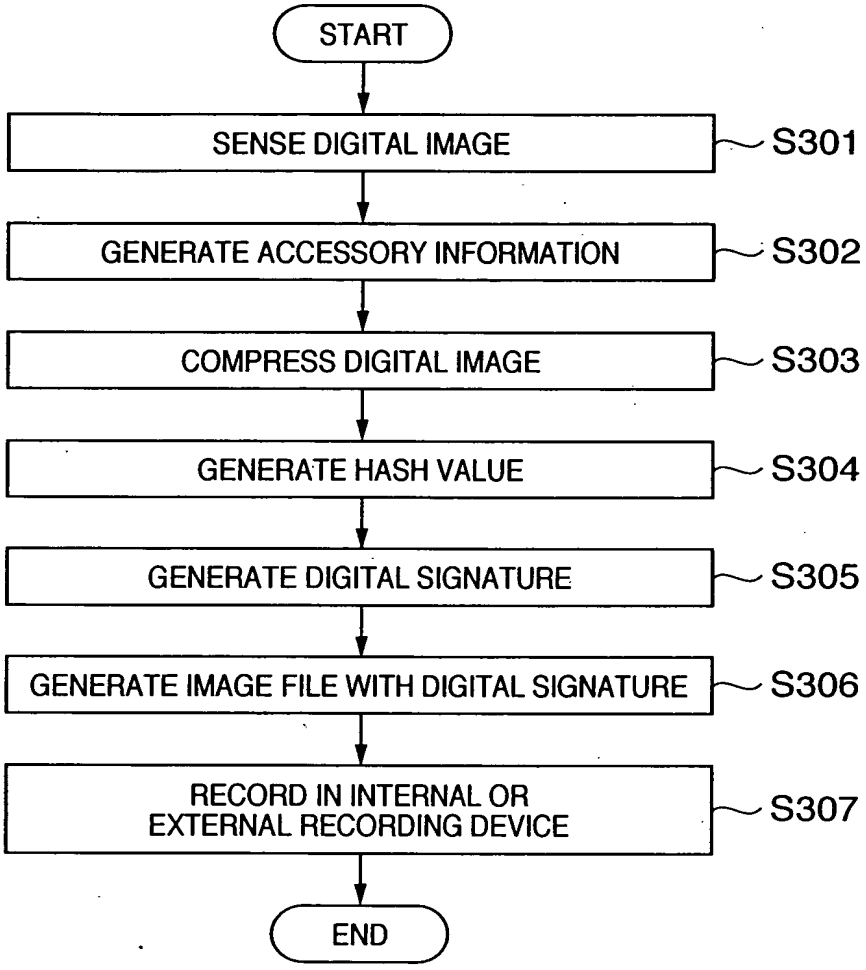

START
SENSE DIGITAL IMAGE
S301
GENERATE ACCESSORY INFORMATION
S302
COMPRESS DIGITAL IMAGE
S303
GENERATE HASH VALUE
S304
GENERATE DIGITAL SIGNATURE
S305
GENERATE IMAGE FILE WITH DIGITAL SIGNATURE
S306
RECORD IN INTERNAL OR EXTERNAL RECORDING DEVICE
S307
END

FIG. 4

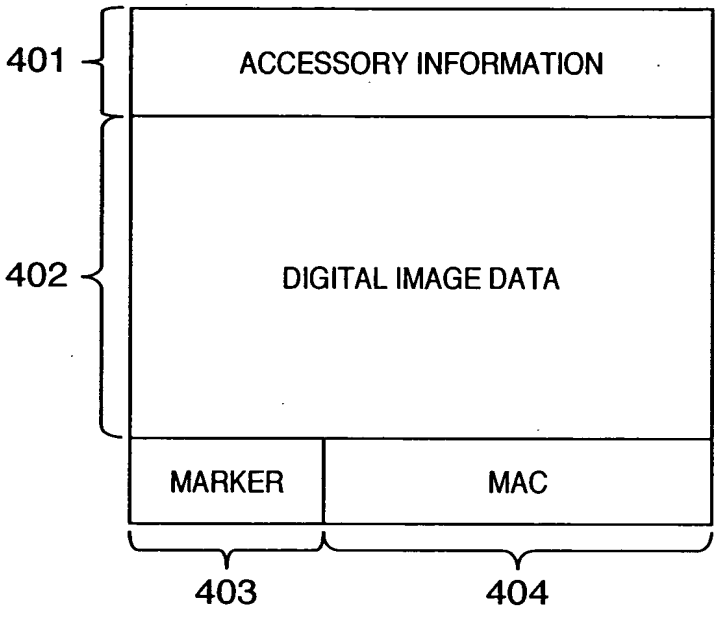

401
ACCESSORY INFORMATION
402
DIGITAL IMAGE DATA
MARKER
MAC
403
404

FIG. 5

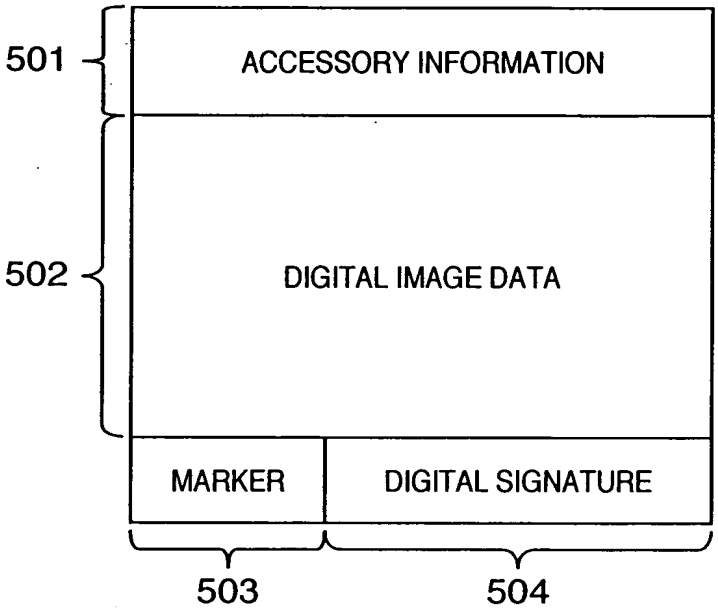

501
ACCESSORY INFORMATION
502
DIGITAL IMAGE DATA
MARKER
DIGITAL SIGNATURE
503
504

FIG. 6

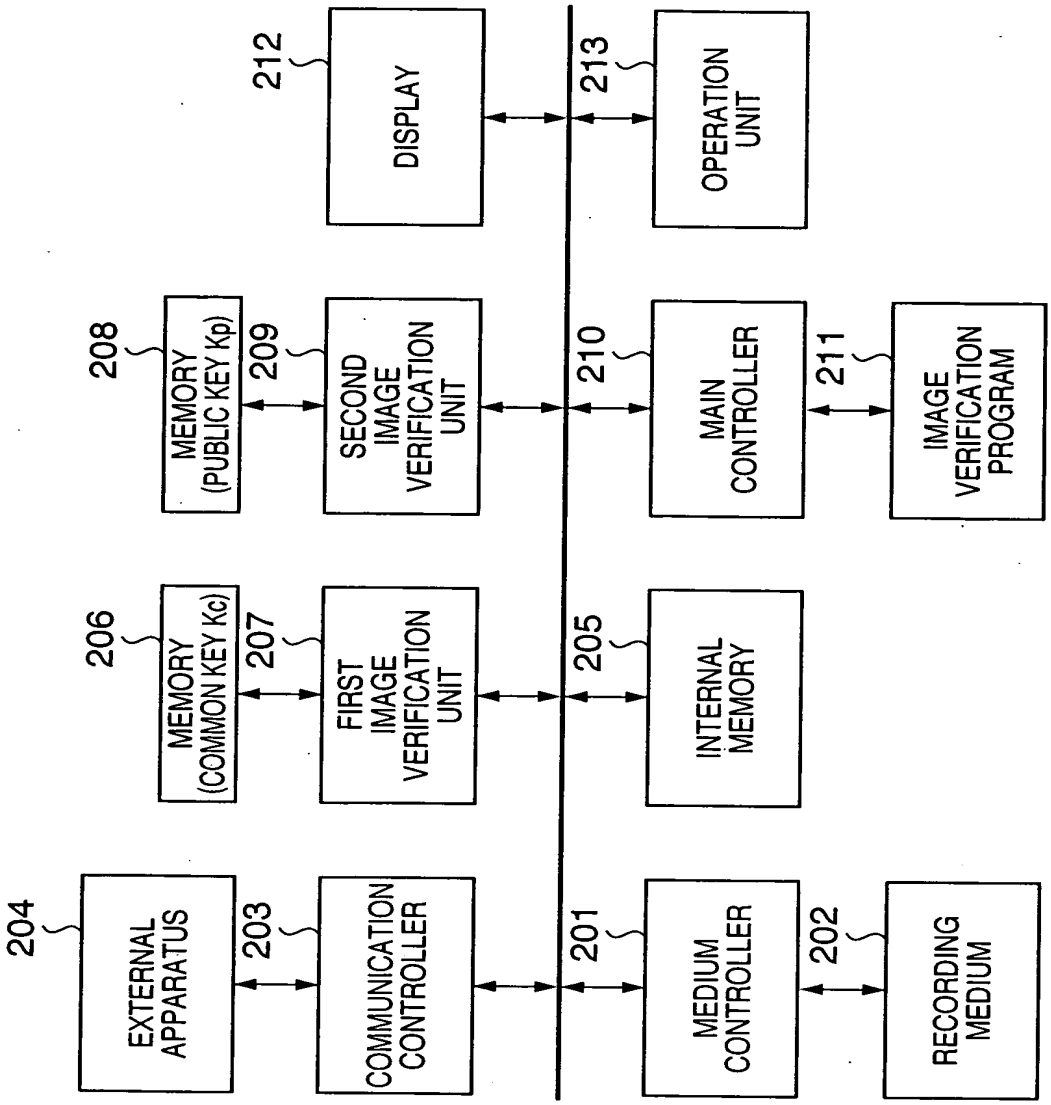

212
DISPLAY
213
OPERATION UNIT
208
MEMORY (PUBLIC KEY Kp)
209
SECOND IMAGE VERIFICATION UNIT
210
MAIN CONTROLLER
211
IMAGE VERIFICATION PROGRAM
206
MEMORY (COMMON KEY Kc)
207
FIRST IMAGE VERIFICATION UNIT
205
INTERNAL MEMORY
204
EXTERNAL APPARATUS
203
COMMUNICATION CONTROLLER
201
MEDIUM CONTROLLER
202
RECORDING MEDIUM

FIG. 7

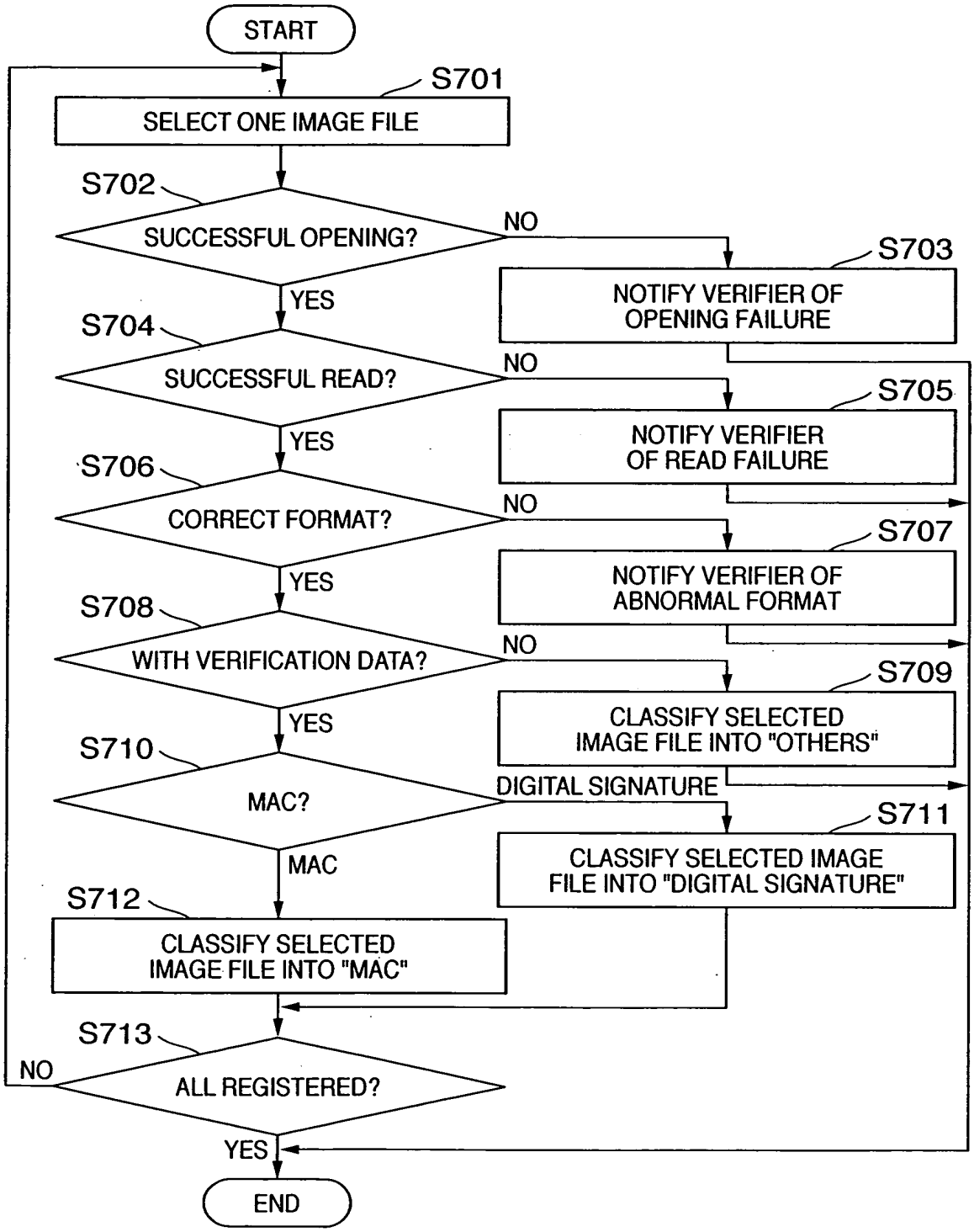

START
S701
SELECT ONE IMAGE FILE
S702
SUCCESSFUL OPENING?
NO
S703
NOTIFY VERIFIER OF OPENING FAILURE
YES
S704
SUCCESSFUL READ?
NO
S705
NOTIFY VERIFIER OF READ FAILURE
YES
S706
CORRECT FORMAT?
NO
S707
NOTIFY VERIFIER OF ABNORMAL FORMAT
YES
S708
WITH VERIFICATION DATA?
NO
S709
CLASSIFY SELECTED IMAGE FILE INTO "OTHERS"
YES
S710
MAC?
DIGITAL SIGNATURE
S711
CLASSIFY SELECTED IMAGE FILE INTO "DIGITAL SIGNATURE"
MAC
S712
CLASSIFY SELECTED IMAGE FILE INTO "MAC"
S713
NO
ALL REGISTERED?
YES
END

FIG. 8

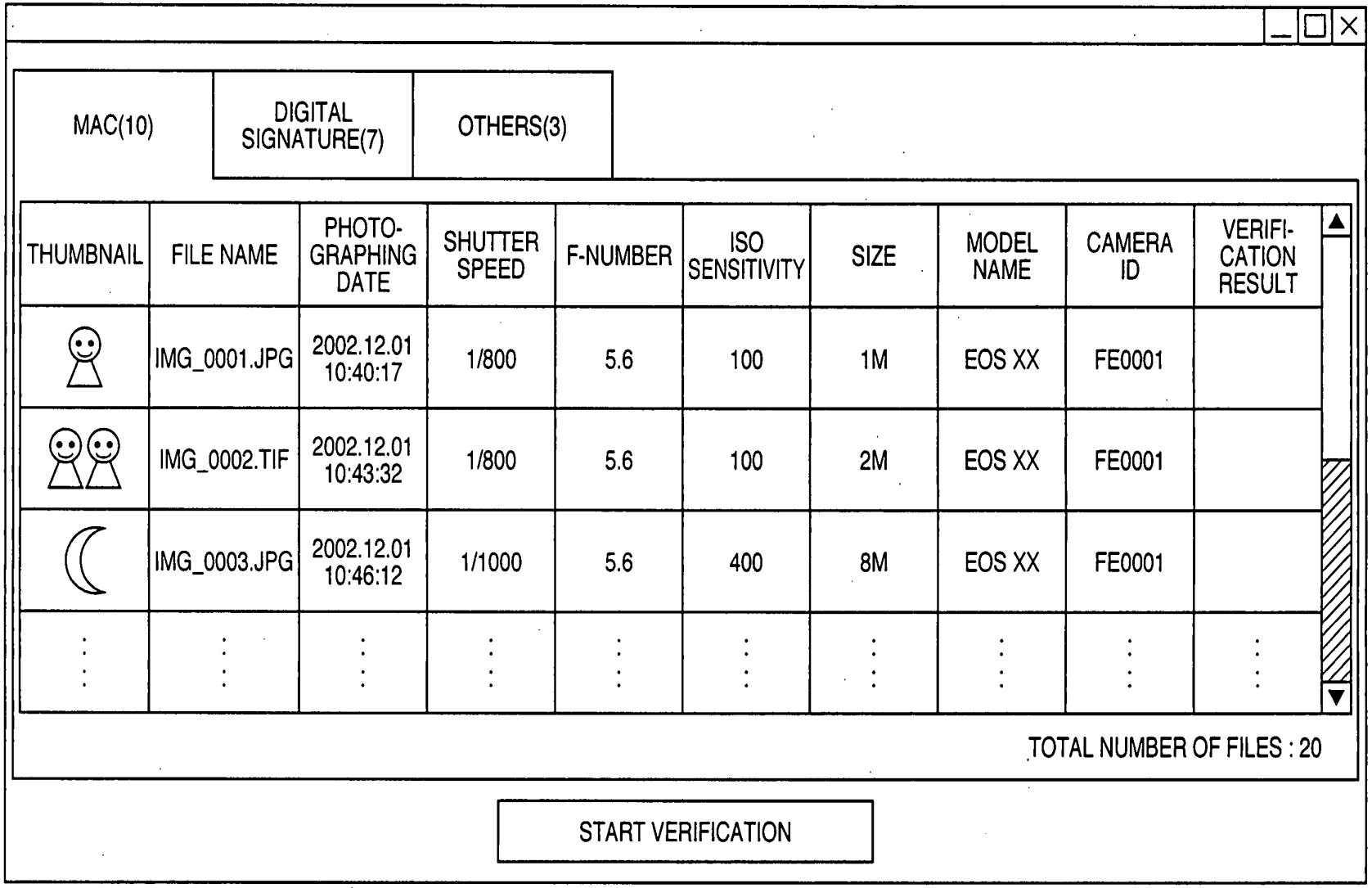

MAC(10)
DIGITAL SIGNATURE(7)
OTHERS(3)
THUMBNAIL
FILE NAME
PHOTO-GRAPHING DATE
SHUTTER SPEED
F-NUMBER
ISO SENSITIVITY
SIZE
MODEL NAME
CAMERA ID
VERIFI-CATION RESULT
IMG_0001.JPG
2002.12.01 10:40:17
1/800
5.6
100
1M
EOS XX
FE0001
IMG_0002.TIF
2002.12.01 10:43:32
1/800
5.6
100
2M
EOS XX
FE0001
IMG_0003.JPG
2002.12.01 10:46:12
1/1000
5.6
400
8M
EOS XX
FE0001
TOTAL NUMBER OF FILES : 20
START VERIFICATION

FIG. 9

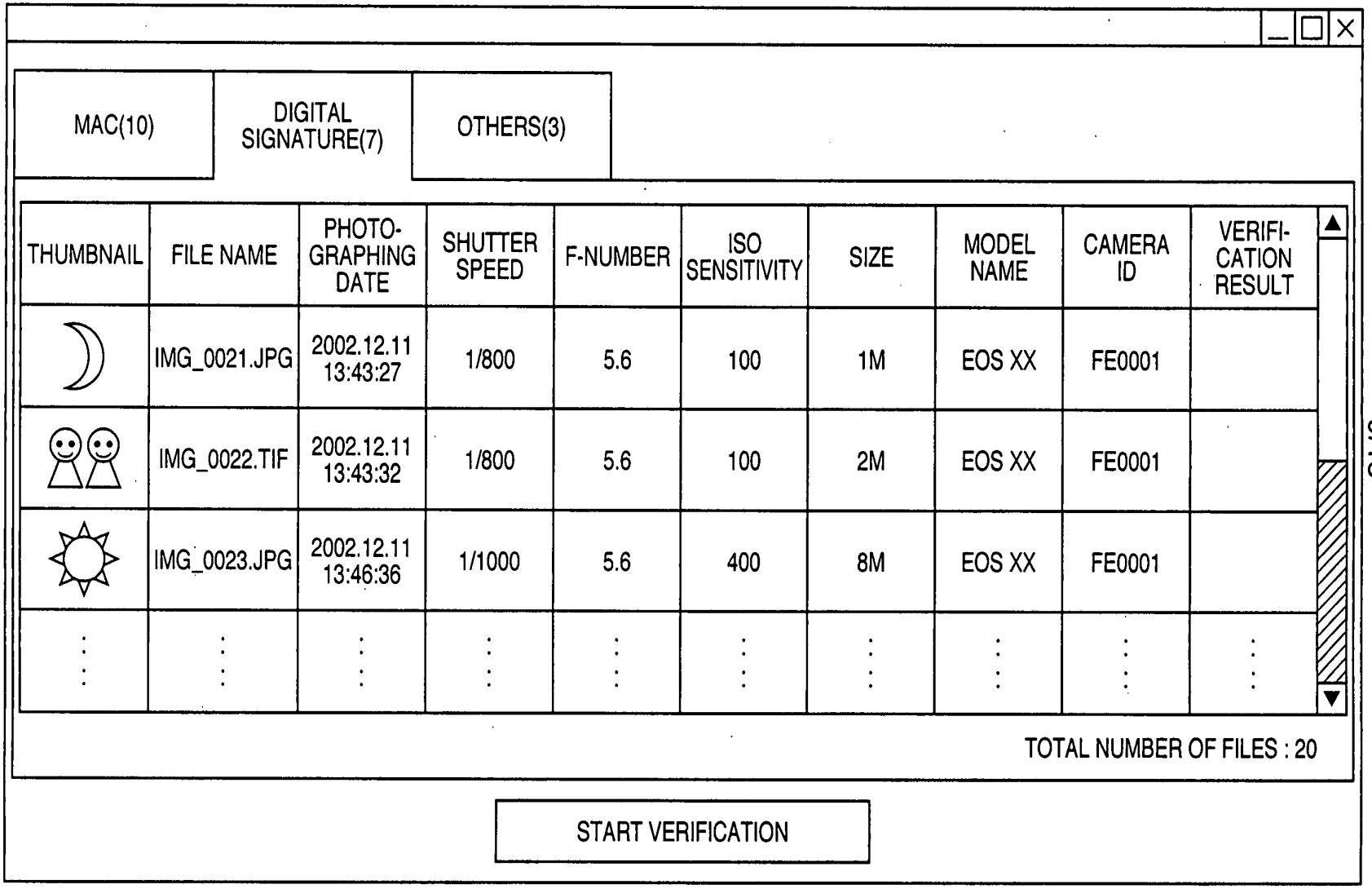

MAC(10)
DIGITAL SIGNATURE(7)
OTHERS(3)
THUMBNAIL
FILE NAME
PHOTO-GRAPHING DATE
SHUTTER SPEED
F-NUMBER
ISO SENSITIVITY
SIZE
MODEL NAME
CAMERA ID
VERIFI-CATION RESULT
IMG_0021.JPG
2002.12.11 13:43:27
1/800
5.6
100
1M
EOS XX
FE0001
IMG_0022.TIF
2002.12.11 13:43:32
1/800
5.6
100
2M
EOS XX
FE0001
IMG_0023.JPG
2002.12.11 13:46:36
1/1000
5.6
400
8M
EOS XX
FE0001
TOTAL NUMBER OF FILES : 20
START VERIFICATION

FIG. 10

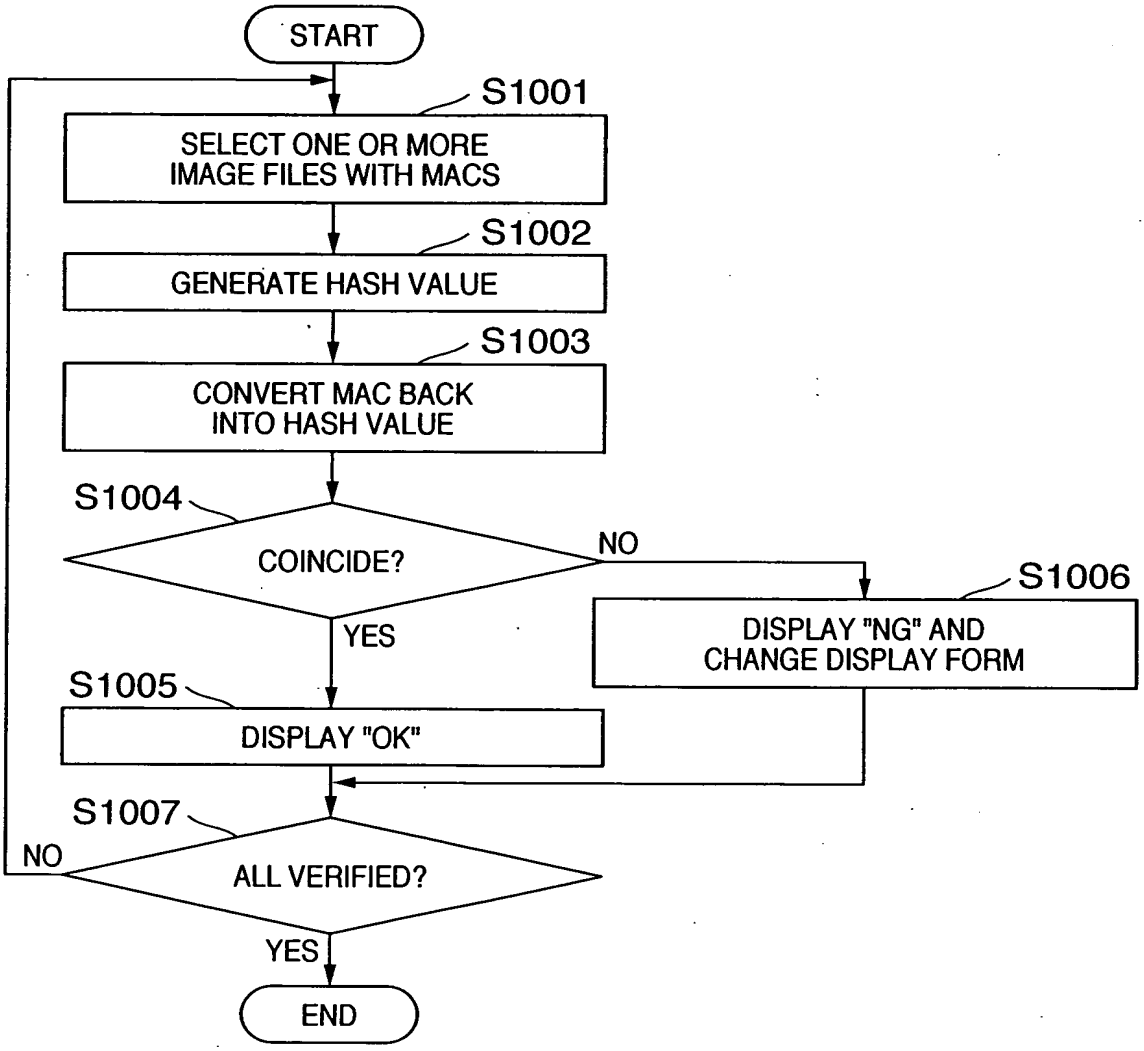

START
S1001
SELECT ONE OR MORE IMAGE FILES WITH MACS
S1002
GENERATE HASH VALUE
S1003
CONVERT MAC BACK INTO HASH VALUE
S1004
COINCIDE?
NO
YES
S1006
DISPLAY "NG" AND CHANGE DISPLAY FORM
S1005
DISPLAY "OK"
S1007
NO
ALL VERIFIED?
YES
END

FIG. 11

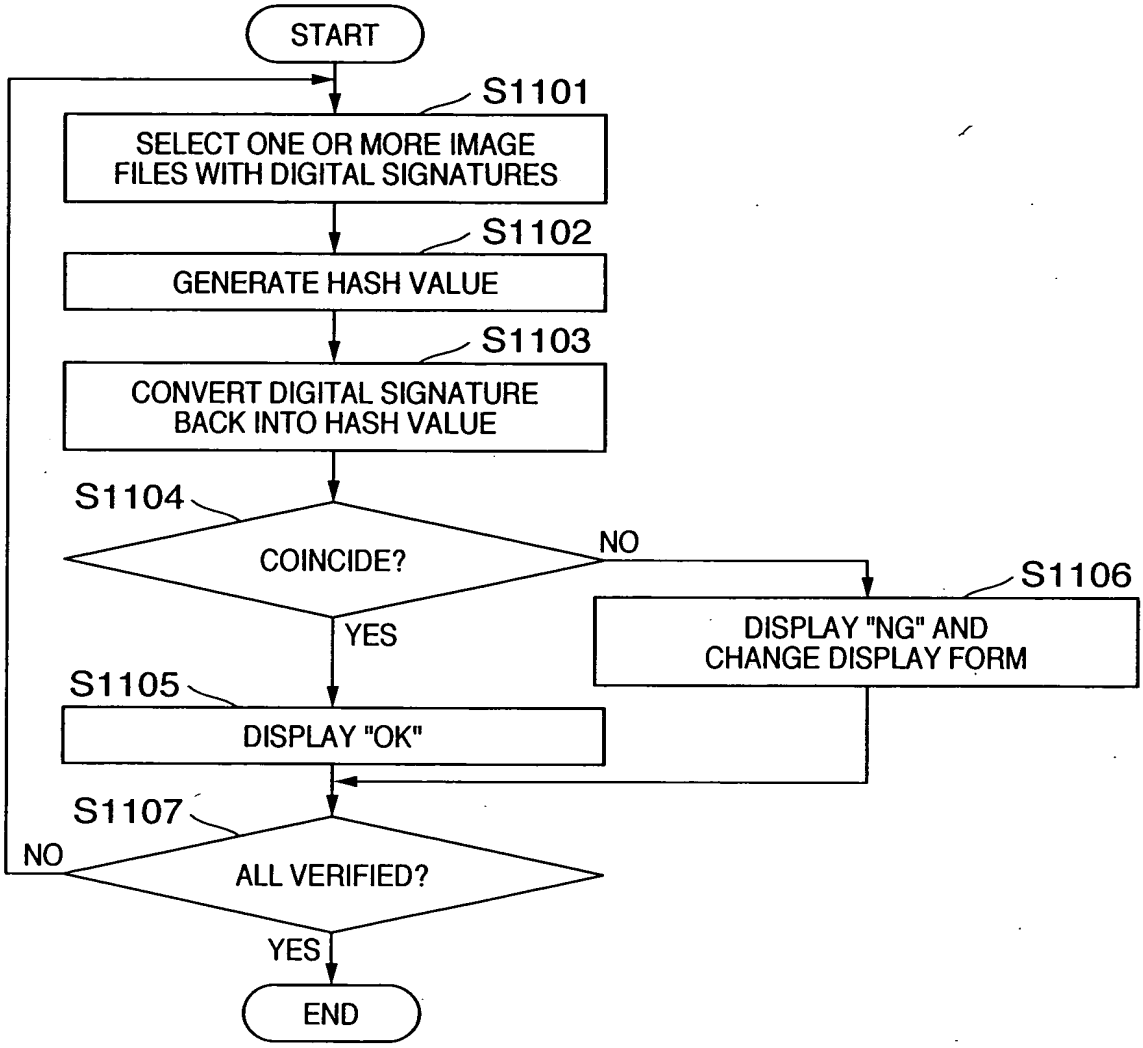
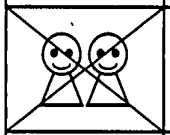

START
S1101
SELECT ONE OR MORE IMAGE FILES WITH DIGITAL SIGNATURES
S1102
GENERATE HASH VALUE
S1103
CONVERT DIGITAL SIGNATURE BACK INTO HASH VALUE
S1104
COINCIDE?
NO
YES
S1106
DISPLAY "NG" AND CHANGE DISPLAY FORM
S1105
DISPLAY "OK"
S1107
NO
ALL VERIFIED?
YES
END

FIG. 12

MAC(10) | DIGITAL SIGNATURE(7) | OTHERS(3)

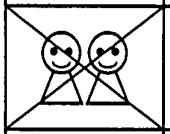
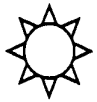
THUMBNAIL	FILE NAME	PHOTO-GRAPHING DATE	SHUTTER SPEED	F-NUMBER	ISO SENSITIVITY	SIZE	MODEL NAME	CAMERA ID	VERIFI-CATION RESULT
	IMG_0001.JPG	2002.12.01 10:40:17	1/800	5.6	100	1M	EOS XX	FE0001	OK
	IMG_0002.TIF								NG
	IMG_0003.JPG	2002.12.01 10:46:12	1/1000	5.6	400	8M	EOS XX	FE0001	OK
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮

TOTAL NUMBER OF FILES : 20

START VERIFICATION

FIG. 13

MAC(10) | DIGITAL SIGNATURE(7) | OTHERS(3)

THUMBNAIL	FILE NAME	PHOTO-GRAPHING DATE	SHUTTER SPEED	F-NUMBER	ISO SENSITIVITY	SIZE	MODEL NAME	CAMERA ID	VERIFI-CATION RESULT
	IMG_0021.JPG	2002.12.11 13:43:27	1/800	5.6	100	1M	EOS XX	FE0001	OK
	IMG_0022.TIF								NG
	IMG_0023.JPG	2002.12.11 13:46:36	1/1000	5.6	400	8M	EOS XX	FE0001	OK
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮

TOTAL NUMBER OF FILES : 20

START VERIFICATION